

EXHIBIT 4

In The Matter Of:

*THE CITY OF NEW YORK, ET AL v.
EXXON MOBIL CORPORATION, ET AL*

*VOLUME 19
August 27, 2009*

*TRIAL
SOUTHERN DISTRICT REPORTERS
500 PEARL STREET
NEW YORK., NY 10007
212-805-0300*

Original File 98RRCITF.txt, Pages 2715-2882 (168)

Word Index included with this Min-U-Script®

Page 2803

Page 2805

[1] adducts, the aqueducts, the bridges, this is kind of like that,
[2] and it forms a bridge between a part of these two strands, and
[3] what happens is when they are supposed to come apart, when your
[4] cells are supposed to replicated in your heart, in your liver,
[5] in your lungs, any other part of your body, they can't do that
[6] accurately. And there are a variety of ways that that can play
[7] out. You can have them simply stuck together and not sending
[8] the messages they need to send, but more often than not you get
[9] breaks in them.

[10] So, if you were to put these two together, and this is
[11] trying to come apart, you can imagine, well, it's going to come
[12] apart but it's not going to come apart just right, you are
[13] going to have pieces stuck together; and then in the long run,
[14] when it tries to copy accurately, it will copy inaccurately.
[15] And so that's how we get a mutation. The message that it's
[16] supposed to send in this sequence, that this sequence is
[17] supposed to send with these specifically combinations of atoms,
[18] becomes inaccurate.

[19] And we know DNA adducts are related to cancer. There
[20] have been literally hundreds of studies that show that. And in
[21] fact when they look at tumors they often times see a higher
[22] level of DNA adducts than you would expect. So, we have a
[23] connection here between one type of mutation that MTBE can
[24] cause and cancer.

[25] Q. Based upon your experience, is MTBE in water a particular

[1] focus that a lot of us have.

[2] Some of the things that are very useful to know about
[3] this is if you think of really young children, especially
[4] infants, their skin is incompletely formed, so if you think of
[5] a baby and how soft their skin is, especially a newborn, that's
[6] because the barrier on the surface of the skin is not really
[7] complete, and that barrier often times is what if you set water
[8] on your hand or other part of the body it's going to sit there
[9] on top. That doesn't work well with a newborn or a very young
[10] infant, so they absorb whatever is in that water much more
[11] readily, especially solvents. And MTBE is a solvent which
[12] means it can penetrate things.

[13] Another aspect of this that I have worked on recently
[14] is, you know, when women are pregnant they are advised to drink
[15] more water. You know, you are going to be putting a lot more
[16] fluid in your body. Your entire water level increases by about
[17] 50 percent by the time you are four or five months pregnant, so
[18] you are supposed to drink eight to 12 cups of water a day. I
[19] looked up recently just to make sure it hadn't changed over the
[20] years, and so some people have a higher intake of water. Kids
[21] who play sports, people that are outside in the summer, you
[22] know, other people tend to drink more water, maybe take more
[23] showers and things like that, so some people have a much higher
[24] exposure than others, but all of us and our pets have water
[25] basically around us.

Page 2804

Page 2806

[1] concern from a public health and toxicological standpoint?
[2] A. It is definitely more of a concern because it's in water.
[3] And the reason is that we need water throughout the course of
[4] the day. We wake up, we take a shower, we make coffee or make
[5] orange juice, and as you can see from this there are just a
[6] variety of different ways that we rely on water throughout the
[7] day.

[8] In the area I live in, I'm up from Boston where it's
[9] awfully cold in the winter, we humidify our houses in the
[10] winter and we put a lot of water into the air. When that water
[11] goes into the air it can carry whatever is in the water with
[12] it.

[13] In addition, MTBE is semivolatile. What that means is
[14] if you were to set a glass of water with MTBE on the counter,
[15] the MTBE would have some ability to move out of that water into
[16] the air independent of the water. So, it has a couple
[17] different ways of getting into the air.

[18] And if you just look at the variety of different ways
[19] that people have water with them every day, I think that you
[20] can see, you know, we can get bottled water but we can't really
[21] avoid coming into contact with the water, which is why we
[22] protect it in such a determined way.

[23] Public health is about protection, and some of the
[24] earliest efforts in public health, even going back into Greek
[25] and Roman times, were to protect the water, and that's a major

[1] Q. Are you saying MTBE can enter the body in a number of ways?

[2] A. Yes. We can ingest it in our food, in our juice, water.
[3] We can inhale it when it gets into the air. And when it's on
[4] your skin, we can absorb it.

[5] Q. Dr. Burns, I would like you to take a look at PL-2436 which
[6] is tab 1 in the notebook.

[7] A. Should I open the notebook?

[8] Q. It's up on the screen; it's on the monitor also.

[9] A. All right.

[10] Q. And I will ask you, what is the American Petroleum
[11] Institute?

[12] A. The American Petroleum Institute is an association of
[13] companies involved in the production of petroleum.

[14] Q. Do you come across the American Petroleum Institute in your
[15] work?

[16] A. Yes, I have. Their name appears on a lot of reports and
[17] other things that I have seen over the years.

[18] Q. And here we have a document dated January of 1984. Could
[19] we please go to that page.

[20] MR. SACRIPANTI: Your Honor, just what is the
[21] relevance?

[22] THE COURT: I don't know yet, because I don't know
[23] what he wants to show.

[24] MR. SACRIPANTI: Could we lay a foundation for it?

[25] THE COURT: Are you going to object to the document

Page 2807

Page 2809

[1] itself?

[2] **MR. CHAPMAN:** It's in evidence.

[3] **THE COURT:** It's already in evidence?

[4] **MR. CHAPMAN:** Yes, it is.

[5] **THE COURT:** I don't have a copy of the notebook this

[6] time.

[7] **THE WITNESS:** Here.

[8] **THE COURT:** No, that's OK. Did you want to give me

[9] one or not?

[10] **THE WITNESS:** Sorry. I forgot my glasses, but if the

[11] person in the back of the courtroom that has my purse could

[12] give me my glasses, I would be really grateful.

[13] I apologize.

[14] **THE COURT:** That's OK. Everyone else has been

[15] forgetting their glasses too.

[16] **THE WITNESS:** I can kind of make that out.

[17] **THE COURT:** In the meantime, since the document is in

[18] evidence, I suppose Mr. Chapman is just going to ask do you

[19] agree with that statement. We have had that question many

[20] times. I don't know if that's the question. Do you agree with

[21] that statement?

[22] **MR. CHAPMAN:** I would just like to refer to this

[23] section which is entitled "Hydrocarbons (Gasoline) in

[24] Groundwater," and it refers to MTBE.

[25] **THE COURT:** Right. But I mean the question to the

[1] **A.** Yes, it was.

[2] **Q.** And is it still an appropriate question?

[3] **A.** It is.

[4] **Q.** And number three, whether boiling increases or reduces

[5] contaminant concentration, was that an appropriate question to

[6] ask back in 1984 from a public health standpoint?

[7] **A.** Yes.

[8] **Q.** And is it still an appropriate question?

[9] **A.** Yes, it is.

[10] **Q.** In connection with your work in the toxicology field and in

[11] the public health field, have you reached any conclusions

[12] concerning whether or not MTBE is a carcinogen?

[13] **A.** Yes, I have.

[14] **Q.** What are those conclusions?

[15] **A.** I have concluded, based on a careful review of the science,

[16] that it is an animal carcinogen and that it's a probable human

[17] carcinogen.

[18] **Q.** Have you reached a conclusion as to whether MTBE is a

[19] mutagen?

[20] **A.** Yes.

[21] **Q.** What is that opinion?

[22] **A.** It is a probable human mutagen.

[23] **Q.** How do toxicologists and public health officials typically

[24] determine whether a substance may cause cancer?

[25] **A.** Toxicologists evaluate whether or not something is likely

Page 2808

Page 2810

[1] witness, is that going to be: Do you agree with that

[2] statement?

[3] **MR. CHAPMAN:** My question is going to be the three

[4] questions which are asked below, from a public health

[5] standpoint were those appropriate questions about MTBE to have

[6] been asked back in 1984?

[7] **THE COURT:** OK, I will allow the question.

[8] **MR. SACRIPANTI:** I just need a foundation, where the

[9] document came from, what's the purpose of the document.

[10] **THE COURT:** It's an API document in evidence. We have

[11] a date. We know who it's from and it's in evidence. That's

[12] enough foundation. The American Petroleum Institute, 1984, and

[13] the question is whether she thinks those were appropriate

[14] questions. I will allow all of that. All right.

[15] **Q.** It says Dr. Thomas noted that some of the issues that were

[16] being evaluated include, one -- this concerns contaminated

[17] water with MTBE -- whether food can be washed with contaminated

[18] water. Is that an appropriate question to ask from a public

[19] health standpoint back then?

[20] **A.** Yes.

[21] **Q.** Is it still an appropriate question?

[22] **A.** Absolutely.

[23] **Q.** And, number two, whether such water can be used for

[24] bathing. Was that an appropriate question to ask from a public

[25] health standpoint back in 1984?

[1] to cause cancer by doing studies on animals for the most part,

[2] and those studies are lifetime studies, so that we look at what

[3] happens over the full course of an animal's life, and we take

[4] one group of animals and we allow them -- I think it was

[5] already explained these are specially bred animals that the

[6] federal government and scientists in other countries as well

[7] have all agreed are fairly good at representing what can happen

[8] in humans. That's why they're chosen, because we think they

[9] are the most accurate representation of what can happen to us.

[10] **Q.** What kind of animals are you talking about?

[11] **A.** They are usually rodents, rats or mice. And we will take

[12] one group of animals and allow them to live without exposure to

[13] whatever it is we are concerned about that we want to study,

[14] and we will take another group of animals and we will put them

[15] in circumstances where they will be exposed to the agent or the

[16] chemical. And sometimes we will do that at different dose

[17] levels, so some will be exposed at 500 units, some will be

[18] exposed to 1,000 units, so we can see what their responses are

[19] at different levels. And usually our interest is in, you know,

[20] what happens when they consume something or when they inhale

[21] something. Those are the most common types of studies that we

[22] do.

[23] When we get the results, we look at the numbers of

[24] animals at the end of the study -- here we are talking about

[25] cancer -- that have cancer, what organs in their body they have